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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,590	12/29/2003	Yasuhiko Abe	09613/0200152-US0	8233
7278	7590	07/14/2004	EXAMINER	
DARBY & DARBY P.C. P. O. BOX 5257 NEW YORK, NY 10150-5257			DINH, JACK	
			ART UNIT	PAPER NUMBER
			2873	

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/748,590

Applicant(s)

ABE, YASUHIKO

Examiner

Jack Dinh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,7,8,10,11,13 and 14 is/are rejected.
- 7) ☒ Claim(s) 3,6,9,12 and 15-19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1203.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: DETAILED ACTION.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 2, 4, 5, 7, 8, 10, 11, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Swaminathan (US Patent 4,060,306) in view of Sugawara (US Patent 5,701,475).

(a) Regarding claim 1, Swaminathan (figure 1) is interpreted as disclosing a total lens system comprising, in sequence from the object side to the image plane side: an aperture stop with a predetermined aperture **P**, a first lens group **I** with an overall positive refractive power (see table), a second lens group **II** with an over positive refractive power (see table), and a third lens group **III** with an overall positive refractive power (see table), wherein the first lens group is a cemented lens formed by bonding, in sequence from the object side to the image plane side, a positive refractive power lens and a negative refractive power lens (see table), and the second lens group is a third lens with a positive refractive power (see table), and a third lens group is a fourth lens with a positive refractive power (see table). Swaminathan is interpreted as disclosing all the claimed limitations except that the third and fourth lens have an aspherical surface on at least one of an object-side surface and an image plane side surface. Within the same field of

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endeavor, Sugawara (figure 1) is interpreted as disclosing a lens system comprising three positive lens group **E1**, **E2**, and **E3**, and the teaching that at least one of the lens surfaces is made to be an aspheric surface. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide an aspherical surface on at least one of the object-side surface and an image plane side surface of the third and the fourth lens, as taught by Sugawara, for the purpose of weakening the refractive power in the marginal zone of the lens to well correct field curvature.

(b) Regarding claim 2, Swaminathan in view of Sugawara is interpreted as disclosing all the claimed limitations, as described above, except that  $f/FL > 0.6$ , wherein  $f$  is a focal length of the total lens system and  $FL$  is a distance from an object-side surface of the aperture stop to the image plane on which an object is imaged. In other words, this simply means that the focal length of the total lens system should be at least 60% of the distance from an object-side surface of the aperture stop to the image plane on which an object is imaged. Although the prior art does not disclose this specificity, such ranges would be easily discovered by, or readily available to one skill in the art through routine experimentation. It is considered not inventive to discover optimum ranges through experimentation. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide this range, for the purpose providing a preferred ratio for the focal length of the total lens system and the distance from an object-side surface of the aperture stop to the image plane on which an object is imaged.

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(c) Regarding claims 4 and 10, Swaminathan in view of Sugawara is interpreted as disclosing all the claimed limitations, as described above, except that the third lens is a meniscus lens with a convex surface oriented toward the image plane side. Although the prior art does not disclose this specificity, the Applicant has not provided any unexpected results this would have over that of the prior art. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide this specificity, for the purpose providing a preferred configuration for the third lens.

(d) Regarding claims 5 and 11, Sugawara is interpreted as further disclosing that the fourth lens is a meniscus lens with a convex surface oriented toward the object side (col. 2, lines 46-47).

(e) Regarding claims 7 and 13, Sugawara is interpreted as further disclosing that the fourth lens is a meniscus lens (col. 2, lines 46-47), which by the concave-convex feature, comprises an inflection point.

(f) Regarding claims 8 and 14, Sugawara is interpreted as further disclosing that the third lens and the fourth lens are formed from a resin material (col. 1, lines 43-45).

*Allowable Subject Matter*

2. Claims 3, 6, 9, 12 and 15-19 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication

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of allowable subject matter. The present invention relates to a photographing lens used with cameras in mobile devices.

(a) Regarding claims 3 and 9, the prior art fails to disclose that the lens system satisfies the two conditions: (1)  $10 < v_1 - v_2 < 25$ , and (2)  $N_1 < 1.6$ , where  $v_1$  is an Abbe number of the first lens,  $v_2$  is an Abbe number of the second lens, and  $N_1$  is a refractive index of the first lens.

(b) Regarding claims 6 and 12, the prior art fails to disclose that the lens system satisfies the two conditions: (1)  $1 < R_6/R_7 < 2$ , and (2)  $1 < R_9/R_8 < 2$ , where  $R_6$  is a radius of curvature of the object-side surface of the third lens,  $R_7$  is a radius of curvature of the image plane side surface of the third lens,  $R_8$  is a radius of curvature of the object-side surface of the fourth lens, and  $R_9$  is a radius of curvature of the image plane side surface of the fourth lens.

3. The prior art taken either singly or in combination fails to anticipate or fairly suggest the limitations of the independent claims, in such a manner that a rejection under 35 USC 102 or 103 would be improper. The claimed invention is therefore considered to be in condition for allowance as being novel and non-obvious over prior art.

***Other Information/Remarks***


4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jack Dinh whose telephone number is 571-272-2327. The examiner can normally be reached on M-F (9:30 AM - 6:00 PM).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jack Dinh



Scott J. Sugarman  
Primary Examiner